This project is going to assess your ability of modeling data using relational data model. It is expected that you draw the ER diagram using MySQL workbench.

Before you start, I would like to remind you that this assignment is different from the assignments that you have completed in the lecture, as this assignment is an **exam** that you take home. This means you can neither discuss your solution with peers nor get help from other resources including but not limited to peers/others/ChatGPT. Submitting the solution for this project is considered as an approval that the work is 100% yours. Therefore, we reserve the right to check for any kinds of academic dishonesty including plagiarism and cheating.

Refusing to follow the policy stated above, is a violation of academic integrity that will have a serious consequence. Please read about the definition of academic integrity and the penalty that one may face, in case they violate academic integrity in https://lassonde.yorku.ca/student-life/academic-support/academic-honesty-integrity .

Problem Description:

We are going to design a database that works as a repository of the questions for courses offered at university. Using this repository, we would like to analyze if the learning objectives of the courses have been met. The following shows the business rule.

At university, professors teach a variety of courses. Based on the nature of the course, each professor chooses a different combination of assessment types. The assessment type include exams (i.e., midterm(s) and final), projects, assignments, quizzes, in-class activities, surveys, presentations and so on. Each professor may use a combination of assessments for each course that they teach. For example, for a course such as "introduction to database systems", in-class activities, written exams, projects and presentation are means of assessing students, however, no popup quiz is used in this course. For a course such as "Human Computer Interaction", however, no exam is given, instead students work on a group project and present their design at the end of the semester.

To each assessment a weight is assigned by the professors. For example, one assignment may have 10% while another holds 15% of the total grade. Some assessments have more than one question, and therefore each question has its own points. We would also like to store a sample solution for some of the assessments. For example, it does not make sense to have a sample solution for a presentation, but for a written exam it is possible.

Every question in an assessment covers a learning objective. The learning objectives are classified into six levels including `Knowledge, Comprehension, application, analysis, synthesis,` and `evaluation.` For example, a question that is given in an exam may evaluate students' `knowledge` about a certain topic, while another assesses the `application` of that knowledge to solve a problem. Each six categories of learning objectives are further categorized to up to 10 subcategories. These subcategories are called `Graduate Attribute Indicators (GAI).` For example, 6 GAI are assigned to analysis, while 10 GAI are defined for synthesis. It is

important for professors to ensure that they assess students comprehensively such that all the GAIs are covered by at least one question/ assessment and all the learning outcomes are tested by two questions during the term.

With the queries that we make on this repository, we should be able to answer several questions such as
- What percentage of students passed a specific course.
- What percentage of the assessment for course X, meets the first learning outcome.
- What types of assessments have been offered by course X in a specific year and term.
- etc., etc., etc.

Hint:
- Although a course may be thought by many professors, but the type of assessments that they use may not be the same.
- A professor teaches at least one course.
- A course is only offered, if at least two professors are eligible to teach it.
- For every assessment stored in the database, we should be able to identify to which year, term and course it belongs.
- One assessment or question can cover only one learning outcome or GAI.
- While the maximum cardinality is important, you should use your best judgment for the minimum cardinality, when it is not explicitly mentioned in the text.

Submission
You submit one pdf file containing the ERD that you have drawn using MySQL Workbench.

The submission must clearly show the attributes and the keys (primary, composite, and foreign keys) in the entities. If it is not legible, you will lose mark.